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| 10/550,025   | 09/23/2005  | Seiji Tanimoto       | 277030US0PCT        | 7360             |
| 22850  | 7590        | 07/22/2008           |                     |                  |
| OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C.<br>1940 DUKE STREET<br>ALEXANDRIA, VA 22314 |             |                      |                     |                  |
| EXAMINER   |             |                      |                     |                  |
| BERNSHTEYN, MICHAEL  |             |                      |                     |                  |
| ART UNIT   |             | PAPER NUMBER         |                     |                  |
| 1796   |             |                      |                     |                  |
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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### Office Action Summary

**Application No.**

10/550,025

**Applicant(s)**

TANIMOTO ET AL.

**Examiner**

MICHAEL M. BERNSTEYN

**Art Unit**

1796

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 September 2005 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-854/IC)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_
- Paper No(s)/Mail Date See Continuation Sheet

Continuation of Attachment(s) 3. Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :03/03/08,10/04/07,12/15/06,12/05/05,09/23/05.

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

1. Claims 1, 2 and 4 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Tanimoto et al. (U. S. Patent 6,495,623).

With regard to the limitation of claims 1 and 4, Tanimoto'623 discloses that a **polyvinyl alcohol having at least 1.9 mol % of 1,2-glycol bonds**, which is within the claimed range, is used as a dispersant for emulsion polymerization or a dispersant for suspension polymerization, and this ensures good polymerization stability even when its amount used is reduced (abstract). For the dispersant additional monomers can be included, for example,  $\alpha$ -olefins, such as propylene, isobutylene, etc.; acrylic acid and its salts; acrylates such as methyl acrylate, ethyl acrylate, n-propyl acrylate, iso-propyl acrylate, n-butyl acrylate, iso-butyl acrylate, t-butyl acrylate, 2-ethylhexyl acrylate, dodecyl acrylate, octadecyl acrylate, etc.; methacrylic acid and its salts; **methacrylates** such as methyl methacrylate, ethyl methacrylate, n-propyl methacrylate, iso-propyl methacrylate, n-butyl methacrylate, etc. (col. 5, lines 13-57).

The dispersant comprises a PVA polymer (A) having a degree of polymerization of from 100 to 4000. More preferably its lowermost limit is at least 200, and its

uppermost limit is preferably at most 3000, which overlaps the claimed range (col. 11, lines 20-30).

Tanimoto'623 discloses that in case where the PVA polymer (A) is used as the primary dispersant its lowermost limit of the degree of hydrolysis (which is saponification) is preferably at least 68 mol%, and the uppermost limit is preferably at most 95 mol%, which is mainly within the claimed range (col. 11, line 60 through col. 12, line 8).

With regard to the limitation of particle size distribution as per claim 1, Tanimoto'623 does not disclose that a "factor a" should be of at least 0.3 that indicates the particle size distribution width of the emulsion because Tanimoto'623 does not disclose the used method of the definition of the particle size distribution width. However, Tanimoto'623 discloses that the necessary properties of the dispersant for suspension polymerization of vinylic compounds are that it is effective for narrowing as much as possible the particle size distribution of the vinylic polymer particles obtained (col. 2, lines 43-46).

Tanimoto'623 discloses that the samples in the examples have a narrower particle size distribution (col. 29 lines 5-12, Tables 2-3 and 2-4, where in the most examples the values are 0 or near 0).

With regard to the limitation of claims 1 and 2, Tanimoto'623 does not disclose that the film formed at 20°C and 65 % RH to have a thickness of 500  $\mu\text{m}$  has a tensile strength of at least 100  $\text{kg/cm}^2$  and that the dissolution of the film formed from the

emulsion at 20°C and 65 % RH to have a thickness of 500 µm is at most 10 %, when dipped in an aqueous 1 N sodium hydroxide solution at 20°C for 24 hours.

However, in view of substantially identical composition between Tanimoto and instant claims, it is the examiner position that a film formed at 20°C and 65 % RH to have a thickness of 500 µm from Tanimoto's (meth)acrylic resin emulsion inherently possesses these properties. Since the USPTO does not have equipment to do the analytical test, the burden is now shifted to the applicant to prove otherwise. *In re Fitzgerald* 619 F 2d 67, 70, 205 USPQ 594, 596 (CCPA 1980).

2. Claims 3 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanimoto et al. (U. S. Patent 6,495,623) in view of Tanimoto et al. (U. S. Patent 6,451,898).

With regard to the limitation of claims 3 and 5, Tanimoto'623 does not disclose that the vinyl alcohol polymer contains from 1 to 20 mol% of  $\alpha$ -olefin units having at most 4 carbon atoms in the molecule, although Tanimoto'623 discloses the usage of  $\alpha$ -olefins in the composition (see paragraph 2 above).

With regard to the limitation of claims 3 and 5, Tanimoto'898 discloses that of the modified PVA, the ethylene unit content must fall between 1 and 15 mol %, but preferably between 3 and 13 mol %, more preferably between 5 and 12 mol %, which is within the claimed range (col. 3, lines 25-40).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to adjust the amount of  $\alpha$ -olefin units in the claimed range, as taught by Tanimoto'898 in Tanimoto'623's (meth)acrylic resin emulsion in

order to obtain a stable aqueous emulsion having good water resistance, good high-temperature viscosity stability and the low-temperature storage stability (col. 3, lines 25-40), and thus to arrive at the subject matter of instant claims 3 and 5.

3. Claims 6-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanimoto et al. (U. S. Patent 6,495,623) in view of Tanimoto et al. (JP-2002-308939).

The disclosure of Tanimoto'623 reference resided in § 3 is incorporated herein by reference.

With regard to the limitation of claim 6, Tanimoto'623 discloses a method for producing the (meth) acrylic resin emulsion comprising emulsion (co)polymerization of at least one monomer selected from acrylate monomers and methacrylate monomers, using, as a dispersant, a vinyl alcohol polymer having a degree of saponification of from 80 to 95 mol% and a degree of polymerization of from 400 to 2000 and using a redox-type polymerization initiator that comprises a peroxide and a reducing agent, wherein the emulsion (co)polymerization is effected in such a controlled manner that the monomer and the vinyl alcohol polymer are fed into the reactor in the initial stage of the reaction and the peroxide is continuously or intermittently added to the polymerization system (col. 7, lines 62 through col. 8, line 20, col. 13, line 54 through col. 14, line 27, Example 1, col. 22, line 48 through col. 23, line 7, etc.).

With regard to the limitation of claims 6 and 10, Tanimoto'623 does not disclose the usage of an iron compound.



Tanimoto'939 discloses that an iron compound is further added to the system (abstract) in the amount of from 1 to 50 ppm, which is exactly within the claimed range (page 3, [0017], [0018]).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the iron compound in the claimed amount, as taught by Tanimoto'939 in Tanimoto'623's (meth) acrylic resin emulsion in order to achieve a good control of the polymerization (page 3, [0017], [0018]), and thus to arrive at the subject matter of instant claims 6 and 10.

With regard to the limitation of claim 8, Tanimoto'623 discloses that the amount of hydrogen peroxide is between 0.01 and 0.03 with is within the claimed range (col. 7, lines 45-48).

With regard to the limitation of claim 9, Tanimoto'623 discloses that the polymerization initiator will be combined with a reducing agent to give a redox system reagent. In that case, in general, hydrogen peroxide will be combined with **tartaric acid**, L-ascorbic acid, or the like (col. 7, lines 50-55).

With regard to the limitation of claim 11, it is noted that all three references used in the current Office action do not specifically disclose the usage of a chain transfer agent, but the discloses that if desired any other additives may also be added to the polymerization system such as agents for controlling a degree of polymerization, inhibitors, etc. (US'623, col. 14, line 45 through col. 15, line 3). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was

made that the addition of a chain transfer agent in the process of obtaining the (meth) acrylic resin emulsion is optional.

With regard to the limitation of claim 12, Tanimoto'623 discloses that if desired, however, the dispersant, which is the above-mentioned PVA polymer in the aqueous emulsion having at least 1.9 mol % of 1,2-glycol bonds, may be combined with any known anionic, nonionic or cationic surfactants (col. 8, lines 60-62).

With regard to the limitation of claim 13, Tanimoto'623 discloses a synthetic resin powder obtained by drying the (meth)acrylic resin emulsion (col. 28, line 54).

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL M. BERNSHTEYN whose telephone number is (571)272-2411. The examiner can normally be reached on M-Th 8-6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on 571-272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1796

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Michael M. Bernshteyn/  
Examiner, Art Unit 1796

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Examiner, Art Unit 1796

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